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CLMPTO

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Claim 1 (Currently amended): An arrayed waveguide grating comprising:

at least a first waveguide having a first width and a first length; [[and]]

a second waveguide having a second width different from the first width and a second length different from the first length;

at least one input waveguide; and

an input slab waveguide optically coupled to the input waveguide, wherein the arrayed waveguide grating is optically coupled to the input slab waveguide.

Cancelled claim 2

Claim 3 (Original): The arrayed waveguide grating of claim 1 wherein the first waveguide comprises an average width which is different from an average width of the second waveguide.

Claim 4 (Currently amended): The arrayed waveguide grating of claim 1 wherein the first width is constant along [[a]] the length of the first waveguide, and the second width is constant along [[a]] the length of the second waveguide.

Claim 5 (Currently amended): The arrayed waveguide grating of claim 1 wherein the first waveguide and the second waveguide each comprise a tapered first end and a tapered second end and an intermediate segment therebetween, wherein the intermediate segment of the first waveguide comprises [[a]] an average width which is constant along a length of the first waveguide and which is different from an average width of the intermediate segment of the second waveguide.

Claim 6 (Original): The arrayed waveguide grating of claim 1 wherein the first waveguide comprises an average width which is different from an average width of the second waveguide such that a standard deviation of a width along a length of the first waveguide divided by the average width of the first waveguide is less than about 0.1, and a standard deviation of a width along a length of the second waveguide divided by the average width of the second waveguide is less than about 0.1.

Claim 7 (Original): The arrayed waveguide grating of claim 1 wherein the first waveguide and the second waveguide each comprise a tapered first end and a tapered second end and an intermediate segment therebetween, wherein an average width of the intermediate segment of the first waveguide is different from an average width of the intermediate segment of the second waveguide,

such that a standard deviation of a width along a length of the intermediate segment of the first waveguide divided by the average width of the first waveguide is less than about 0.1, and a standard deviation of a width along a length of the intermediate segment of the second waveguide divided by the average width of the second waveguide is less than about 0.1.

Claim 8 (Original): The arrayed waveguide grating of claim 1 wherein each of the waveguides in the arrayed waveguide grating comprise buried channel waveguides.

Claim 9 (Original): The arrayed waveguide grating of claim 1 wherein each of the waveguides in the arrayed waveguide grating comprise silica.

Claim 10 (Original): The arrayed waveguide grating of claim 8 wherein the buried channel waveguides comprise silica.

Claim 11 (Original): The arrayed waveguide grating of any of claims 1-10 wherein each of the widths of the waveguides in the arrayed waveguide grating is configured to provide a predetermined polarization dependent wavelength.

Claim 12 (Original): The arrayed waveguide grating of any of claims 1-10 wherein the waveguides in the arrayed waveguide grating are configured according to Eq. 11a.

Claim 13 (Original): The arrayed waveguide grating of claim 12 wherein $\Phi_i=0$ in Eq. 11a.

Claim 14 (Original): The arrayed waveguide grating of claim 12 wherein a variation of average birefringence is caused by a variation in an average width of the waveguides in the arrayed waveguide grating.

Claim 15 (Original): The arrayed waveguide grating of claim 13 wherein a variation of average birefringence is caused by a variation in an average width of the waveguides in the arrayed waveguide grating.

Cancelled claims 16-25

Claim 26 (Original): The arrayed waveguide grating of claim 12 wherein a variable L_i in Eq. 11a comprises non-tapered segments.

Claim 27 (Original): The arrayed waveguide grating of claims 5 or 7 wherein the first tapered end and the second tapered end comprises a length less than about 1 mm.

Claim 28 (Original): The arrayed waveguide grating of any of claims 1-10 wherein a value of $|w_N - w_1|$ is between about 0.5 μm and about 5 μm.

Cancelled claim 29

Claim 30 (Currently amended): The arrayed waveguide grating of any of claims [[2-7]] 1-7 wherein the waveguides in the arrayed waveguide grating comprise buried channel waveguides.

Claim 31 (Currently amended): The arrayed waveguide grating of any of claims [[2-7]] 1-7 wherein the waveguides in the arrayed waveguide grating comprise silica.

Claim 32 (Original): The arrayed waveguide grating of claim 30 wherein the buried channel waveguides comprise silica.

Cancelled claims 33-37